

Work Order ID 73695



Page 1

Tuesday, September 13, 2011 11:00:12 AM

Item ID: D105-674-011G

Accept



Setup Start



Revision ID:

Stop



Item Name: Skidtube, Grey

Start Date: 9/13/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 9/27/2011 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: / Date: 11-09-13 Tooling: Date:

QC: Date: SPC (Y/N): Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D2966

Rev A2

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile & type labels per PPP D105-674-011G CHG002

120

0.00



BENDING MACHINE - SKIDTUBES

CNC Bend 1

Memo

0.00

CNC Delta 100 Bender

Bend tube as per program BO105 on CNC Bender and Dwg D2966 as per folio 1, use DT9631 bending aide

W 11 12 02 (1)
CL 11-12-2

N/A DP 11-11-30

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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130

0.00



Skidtubes

Skidtubes

Memo

0.00

- 1-Cut Fwd end of the tube using DT8185-1 ✓ NIA DP 11-11-30
- 2-Cut Aft end at 107.06" using DT8185D ✓
- 3-Deburr ends ✓
- 4-Drill Aft Cap holes using DT8678 ✓
- 5-Locate DT8679 with 1/8 clecos in Aft Cap holes. Ensure DT8679 is centered on Fwd end of tube and drill #40 Fwd bushing.
- 6-Clamp DT8679 to the tube. Drill all #30 wearplate and crossbolt holes. ✓
- 7-Open Aft Cap holes using #6 drill
- 8-Open wearplate holes and two side holes to Ø19/64" (0.297") as per Dwg D2966-1. ✓
- 9-Deburr holes. ✓
- 10-Open remaining (16) crossbolt holes to Ø0.500

140

0.00



Skidtubes

Skidtubes

Memo

0.00

- 1-Weld Fwd Cap as per Dwg D2966 and QSI 004. Fill #40 Fwd cleco hole.
- 2-Grind Fwd Cap welds flush

A/R M117889

Grind

1

0

SEP 11-11-30

1

0

SAD 11-11-30

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150 QC Quality Control	QC10- Inspect visual per QSI004- ground welds Memo	0.00 0.00							
160 QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.00							
170 HandFinish Hand Finishing	Chemical Conversion Coat per QSI005 4.1 Memo	0.00 0.00							

11.12.01

11 - 12 - 01 (1)

BR 11-12-11

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180

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

11 12 01 (1)

190

Skidtubes

0.00



Skidtubes

Memo

0.00

Skidtubes

SAD 12-12-01 0

1-Open crossbolt holes to finish size as per Dwg D2966
2-Open 14 holes to Ø0.750" & 2 holes to Ø0.875", countersink crossbolt holes &
remove alodine to prepare for welding as per Dwg D2966
3-Deburr holes inside & outside, blow out chips

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QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

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200

0.00



Skidtubes

Skidtubes

Memo

0.00

1-Bond Web in place per QSI 015. (Ensure holes line up)

Pick:

A/R Sikaflex-291 batch: M119399

Sikaflex expiry date: 12-08-13

start time: 11:00

end time: 11-12-02 7:00

2-Weld Crossbolt Spacers as per Dwg D2966 and QSI 004. For crossbolt spacer, weld one side, pass 5/8" drill; weld other side, pass 5/8" drill.

Pick:

A/R Aluminum Rod batch: M117889

B/E 11-12-02

3-Pass Ø0.630" drill to remove spillover for D2973 crossbolt. Pass Ø0.750" drill to remove spillover for D2971 crossbolt.

B/E 11-12-02

4-Grind welds flush as per Dwg D2966

B/E 11/12/02

210

QC10- Inspect visual per QSI004- ground welds

0.00



QC

Memo

0.00

Quality Control

B/E 11-12-02

1 Ø

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Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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220

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

12 11 12 02 ①

225

Chemical Conversion Coat per QSI005 4.1

0.00



HandFinish

Memo

0.00

Hand Finishing

1X Ø M-f 11/12/02

230

Grey Sandtex(Ref:4.3.5.6) per QSI005 4.3

0.00



Powdercoat

Memo

0.00

Powder Coating

START TIME: 9:50
OVEN TEMPERATURE: 320 OF
FINISH TIME: 10:20

1X Ø M-f 11/12/02

M 118484

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QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

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240 QC Quality Control	QC3- Inspect Part Finish Memo	0.00 0.00				1		BL 11-12-2.	
250 HandFinish Hand Finishing	HandFinishing Memo 1-Inspect for foreign objects as per QSI 024 2-Install Inserts, Wearplate and Cap per Dwg D2966. Insert a drop of sikaflex at insert holes before installing wearplates. Seal Aft Cap using Sikaflex. Install bushing and nut. By looking Fwd, install nut to right hand side. Pick: Qty <input type="checkbox"/> Part Number <input type="checkbox"/> Description <input type="checkbox"/> Batch A/R <input type="checkbox"/> Sikaflex-291 <input type="checkbox"/> 118443 <input type="checkbox"/> Sikaflex expiry date: <input type="checkbox"/> 12-1. 3-Wing Walk as per Dwg D2966 and QSI 005 4.4 Batch: 118988	0.00 0.00				1		BL 11-12-2.	

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Run Start

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

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260 QC3- Inspect Part Finish 0.00



QC Memo 0.00

Quality Control

n 11 . 12 . 02 (1)

270 QC5- Inspect part completeness to step on W/O 0.00



QC Memo 0.00

Quality Control

*****ENSURE INSERT ARE AT LOCATION (6) AS PER DWG
D2966*****

n 11 . 12 . 02 (1)

280 Pick Kit 0.00



Packaging Memo 0.00

Packaging

8011-12-02

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--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

290 QC4- 100% Inspect kits for completeness 0.00



QC Memo 0.00

Quality Control

W 11-12-02 ①

300 Packaging 0.00



Packaging Memo 0.00

Packaging Identify and pack for shipping as per PPP D105-674-011G Location: 81

Rev A

Sep 11-12-02

310 QC21- Final Inspection - Work Order Release 0.00



QC Memo 0.00

Quality Control

CK w/12/02

11-12-2
①

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Picklist Print

Page 1

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Parent Item Name: Skidtube, Grey



Start Date: 9/13/2011

Required Date: 9/27/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A 04.07.07 New Issue KJ/JLM
seq110 DD verf:EC

IPP Rev:B 10.06.09 remove

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D2962-125 Outer Tube Extrusion	D2966-1 B	Manufactured	No			120	Each	23.0000	1	1			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				HALL		23							
					17532	23							
D2964 Cap		Manufactured	No			140	Each	7.0000	1	1			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				LG002		7							
					64654	7							
D2976 BO 105 Skidtube I Beam		Manufactured	No			200	Each	0.0000	1	1			
D2971 Cross Bolt Spacer		Manufactured	No			200	Each	2.0000	1	1			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				LG001		2							
					44445	2							
D2973 Cross Bolt Spacer		Manufactured	No			200	Each	94.0000	7	7			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				LG002		94							
					14636	94							



SAD 11-11-30



BE 11-11-30



SAD 11-12-01



BE 11-12-02

B 74720 101



BE 11-12-02

7

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Start Date: 9/13/2011

Required Date: 9/27/2011

Start Qty: 1.00

Required Qty: 1.00

D2965

 Cap, 105 Skidtube

Manufactured No

250 Each

44.0000

1 1



BR 11-12-8

Location

Loc Qty

Loc Code

FP006

77299

44

71371

44

1

D2970-1

 Wearplate

Manufactured No

250 Each

11.0000

1 1



BR 11-12-2

Location

Loc Qty

Loc Code

FP016

48213 ✓

11

11

1

D2970-3

 Wearplate

Manufactured No

250 Each

9.0000

1 1



BR 11-12-2

Location

Loc Qty

Loc Code

FP020

48214 ✓

9

9

1

D3176-1

 Bushing

Manufactured No

250 Each

14.0000

1 1



BR 11-12-2

Location

Loc Qty

Loc Code

ST039

37586 ✓

14

14

1

D3176-3

 Nut

Manufactured No

250 Each

17.0000

1 1



BR 11-12-2

Location

Loc Qty

Loc Code

ST039

44896 ✓

17

17

1

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Parent Item Name: Skidtube, Grey

Start Date: 9/13/2011

Required Date: 9/27/2011

Start Qty: 1.00

Required Qty: 1.00

ALS7-1032-130 Purchased

No

250

Each

1,117.000

36

36



Insert

Location

Loc Qty

Loc Code

ST282

114530

1117

117717

899

118386

218

36.

MS27039-1-08 Purchased

No

250

Each

796.0000

26

26



Screw

Location

Loc Qty

Loc Code

ST291

796

115108

96

117423

300

118378

400

26.

AN960JD10L *NAS1149D03321 Purchased

No

250

Each

0.0000

28

28



Washer

118389

28. BR 11-12-2

MS27039-1-09 Purchased

No

250

Each

463.0000

2

2



Screw

Location

Loc Qty

Loc Code

FP-B

169

18057

169

ST291

294

111650

294

2.

BR 11-12-2

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Required Date: 9/27/2011

Start Qty: 1.00

Required Qty: 1.00

D2972
Bushing

Manufactured No

290 Each 75.0000

6 6

Location

Loc Qty

Loc Code

ST028

75

33544

44

44160

31

D2974
Packer

Manufactured No

290 Each 45.0000

1 1

Location

Loc Qty

Loc Code

ST028

45

71997

45

D2975
Wearshoe

Manufactured No

290 Each 3.0000

2 2

Location

Loc Qty

Loc Code

ST497A

3

69079

3

AN4-51A
Bolt

Purchased No

290 Each 149.0000

3 3

Location

Loc Qty

Loc Code

ST361

149

118451

49

118628

50

118706

50

AN960JD10L
Washer

NAS1149D0332J

Purchased No

290 Each 0.0000

8 8

Tuesday, September 13, 2011 11:00:29 AM

Shop Packet Print

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Start Date: 9/13/2011

Required Date: 9/27/2011

Start Qty: 1.00

Required Qty: 1.00

nhf
X)

MS21042L4

Purchased

No

290

Each

3,643.000

3

3



Nut



MI19017 SP.

Location

Loc Qty

Loc Code

ST300

3643

117441

51

117601

637

117885

955

118451

2000

nhf
X)

MS27039-1-08

Purchased

No

290

Each

796.0000

8

8



Screw



SP 11-12-02

Location

Loc Qty

Loc Code

ST291

796

115108

96

117423

300

118378

400

FX

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



DESIGN RF	DRAWN BY RF	DART AEROSPACE USA, INC. BELLEVUE, WA	
CHECKED #	APPROVED #	DRAWING NO. D2966	REV. A SHEET 1 OF 2
DATE 00.03.08		TITLE BO 105 SKIDTUBE ASSEMBLY	SCALE NTS
A	00.03.08	NEW ISSUE	

RELEASED
00.05.11 #

Qty	Part Number	Description
X	D2966-041	SKIDTUBE ASSEMBLY
1	D2962-125	EXTRUSION
1	D2964	CAP
1	D2965	CAP
1	D2970-1	WEARPLATE
1	D2970-3	WEARPLATE
1	D2971	CROSS BOLT SPACER
7	D2973	CROSS BOLT SPACER
1	D2976	WEB
36	ALS7-1032-130 or ALS4-1032-130 or AKS7-1032-130 or AKS4-1032-130	INSERT
28	AN960JD10L	WASHER
26	MS27039-1-08	SCREW
2	MS27039-1-09	SCREW
1	D3176-1	BUSHING
1	D3176-3	NUT

A2

SIGNED
RETURNED
ENGINEER
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 73695

01/1-09-17

GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) WELDING TO BE DONE PER DART QSI 004.
- 3) INSERT D2976 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241/-291 ADHESIVE PER DART QSI 015 AFTER BENDING.
- 4) USE DART DRILL TEMPLATE DT8451 TO LOCATE AND DRILL Ø0.297 HOLES FOR WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION B-B (34 PLACES) AFTER FINISH. SEAL WEARPLATE SCREWS WITH SIKAFLEX-241/-291.
- 5) DO NOT INSTALL MS27039-1-08 SCREWS AND AN960JD10L WASHERS IN THESE LOCATIONS.
- 6) INSTALL ALS7-1032-130 INSERT, MS27039-1-08 SCREW, AND AN960JD10L WASHER IN 2 PLACES THIS LOCATION BEFORE POWDER COATING.
- 7) FINISH:

ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2976 WEB
POWDER COAT ASSEMBLY GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED TO 1.00 ABOVE CENTER LINE PER DART
QSI 005 4.4 (OPTIONAL) BLACK SANDTEX (REF 4.3.5.7)

A1

01.01.29
IP 01.01.30

A2	02.10.30	ADD D3176-1/-3	# IP
A1	01.01.29	CHANGE COLOR TO BLACK SANDTEX	# IP

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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

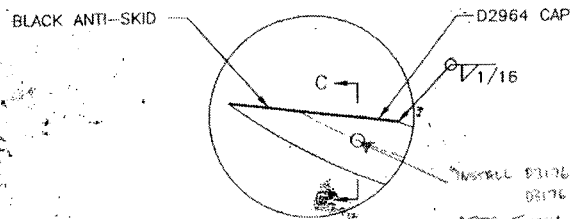
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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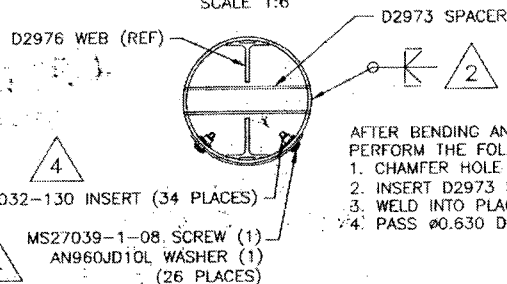
NOTE: Date & initial all entries

13 GAS

DETAIL A
SCALE 1:3

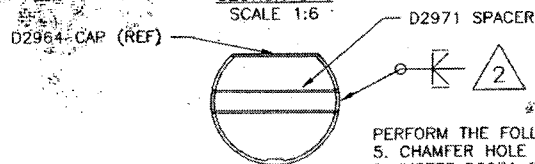


SECTION B-B
SCALE 1:6



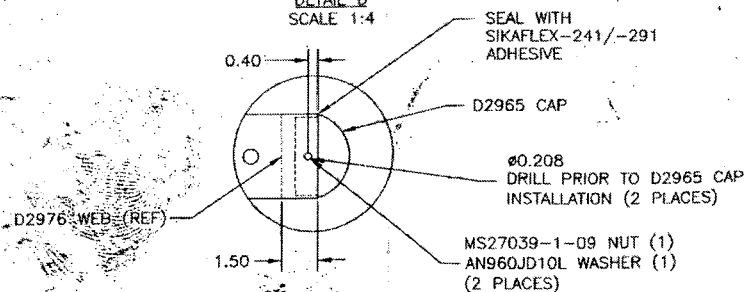
- AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING FOR $\phi 0.750$ HOLES ONLY:
1. CHAMFER HOLE $0.030 \times 45^\circ$
 2. INSERT D2973 SPACER (7 PLACES)
 3. WELD INTO PLACE AND GRIND FLUSH
 4. PASS $\phi 0.630$ DRILL TO REMOVE SPILL OVER

SECTION C-C
SCALE 1:6

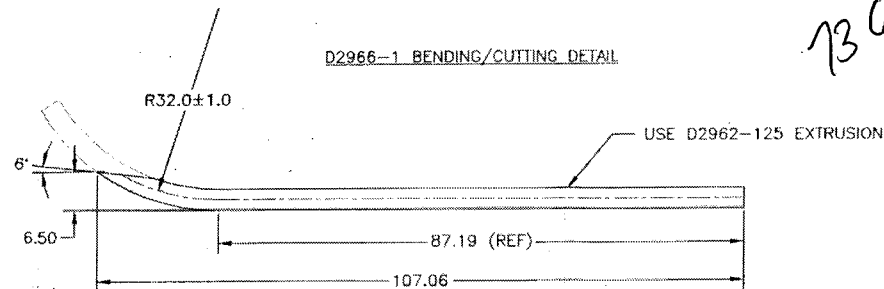


- PERFORM THE FOLLOWING FOR $\phi 0.625$ HOLES ONLY:
5. CHAMFER HOLE $0.030 \times 45^\circ$
 6. INSERT D2971 SPACER
 7. WELD INTO PLACE AND GRIND FLUSH
 8. PASS $\phi 0.484$ DRILL TO REMOVE SPILL OVER

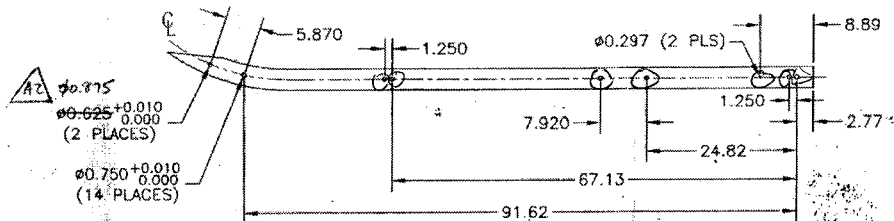
DETAIL D
SCALE 1:4



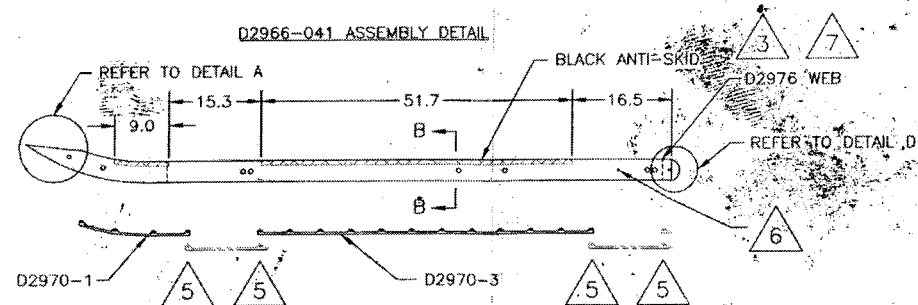
D2966-1 BENDING/CUTTING DETAIL



D2966-1 DRILLING DETAIL



D2966-041 ASSEMBLY DETAIL



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DESIGN RF	DRAWN BY RF
CHECKED 4	APPROVED 4
DATE 00.03.08	

DART DART AEROSPACE USA, INC. BELLEVUE, WA
DRAWING NO. D2966
TITLE BO 105 SKIDTUBE ASSEMBLY
REV. A SHEET 2 OF 2 SCALE 1:20

1.7¢

W/O:		WORK ORDER CHANGES					
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